

APPENDIX A

WHAT IS CLAIMED IS:

1. (currently amended) A method of fabricating an interconnection for a microelectronic device, the method comprising:

providing a support structure [100; p. 7, lns. 19-25] including a dielectric, said support structure having oppositely-directed first [the side facing upwardly in Figs. 1A-2B] and second surfaces;

coupling a conductive sheet [110; p. 7, lns. 18-19] to the first surface of the support structure;

selectively removing portions of the conductive sheet thereby producing a plurality of substantially rigid, elongated posts [130; Fig. 2A] protruding parallel to one another from the first surface of the support structure, each post having a top surface [the circular surface of each post visible in Figs. 2A and 2B], remote from the support structure [p. 7, lns. 14-17];

providing a microelectronic device [150; Figs. 2A-2B] so that said microelectronic device overlies said second surface of said support structure, said second surface of said support structure facing away from said posts; and

electrically connecting at least some of said posts to said microelectronic device.

2. (currently amended) The method as claimed in claim 1, wherein the support structure is a flexible dielectric structure [p. 7, ln. 20].

3. (previously presented) The method as claimed in claim 2, wherein each said post has a direction of elongation and at least one edge extending along the post in said direction of elongation [Figs. 3B and 3C; p. 11, ln. 24 to p. 12, ln. 4].

4. (currently amended) The method as claimed in claim 2, wherein each post has a cooling tower shape [p. 8, ln. 24 to p.

9, ln. 5], each post tapering inwardly from a base surface to a narrow region between the base surface and the top surface and flaring outwardly from said narrow region toward said top surface.

5. (previously presented) The method as claimed in claim 4 [Figs. 3B and 3C; p. 11, ln. 24 to p. 12, ln. 4], wherein each said post has at least a direction of elongation and one edge extending along the post in said direction of elongation.

6. (original) The method as claimed in claim 2, wherein the conductive sheet is selected from the group consisting of copper, brass, and bronze [originally-filed claim 6].

7. (original) The method as claimed in claim 6, wherein the conductive sheet has a thickness between 125 and 500 microns [originally-filed claim 7].

8. (previously presented) The method as claimed in claim 7, wherein said selectively removing step is performed so that each of said posts has an exposed surface, the method further comprising plating a conductive layer to the exposed surface of each of said posts [See p. 9, lns. 21-25 and originally-filed claim 8].

9. (currently amended) The method as claimed in claim 1, wherein the step of selectively removing comprises:

providing etch-resistant portions [etch-resistant photoresist portions 125; Fig. 1A and p. 8, lns. 7-9; see also 180, 190, 200; Figs. 3A-3B, p. 11, lns. 19 et seq.] to a surface of the conductive sheet remote from the support structure; and

etching the conductive sheet, the etch-resistant portions being substantially unaffected by the etching process [Fig. 1B and p. 8, lns. 9-13].

10. (currently amended) The method as claimed in claim 9, wherein the providing etch-resistant portions step includes:

applying a photoresist layer [120] to the conductive sheet;

selectively developing the photoresist layer to form etch-resistant portions and remaining portions; and

removing remaining portions of the photoresist layer [p. 8, lns. 2-9; see also originally-filed claim 10].

11. (currently amended) The method as claimed in claim 1, wherein said microelectronic device has a plurality of bond pads [160; Figs. 2A and 2B]; and said step of electrically connecting said microelectronic device to said posts includes electrically connecting said bond pads to said posts.

12. (currently amended) The method as claimed in claim 11, further comprising disposing a compliant structure [140; Fig. 2A] between the second surface of the support structure and the microelectronic device.

13. (currently amended) The method as claimed in claim 1, further comprising soldering a portion of each post remote from said support structure to a contact on a printed circuit board [p. 12, lns. 5-7; see also p. 9, lns. 14-20 and originally-filed claim 13].

14. (currently amended) The method as claimed in claim 1, further comprising disposing each post within and in electrical contact with a respective socket on a printed circuit board [p. 12, lns. 5-7; Figs. 4A and 4B; see also p. 9, lns. 14-20 and originally-filed claim 14].

15. (currently amended) The method as claimed in claim 11, wherein the step of electrically connecting said bond pads to said posts includes:

providing a plurality of conductive vias extending from the first surface of the support structure to the second surface of the support structure, each via positioned beneath and in electrical contact with one post [p. 11, lns. 9-18]; and

connecting each bond pad to a respective post through a respective conductive via.

16. (currently amended) The method as claimed in claim 15, wherein said step of electrically connecting said bond pads to said posts includes providing brazing buttons [210; Figs. 6A and 6B; p. 13, lns. 3-8] each extending from one via and coupling each one of said brazing buttons to one of said bond pads on a said microelectronic element.

17. (currently amended) The method as claimed in claim 16, further comprising the step of removing the support structure after the brazing buttons have been attached to the bonding pads [p. 13, lns. 10-14].

18. (currently amended) The method as claimed in claim 9, wherein the etch-resistant portions include metallic portions [210; Fig. 5; p. 12, lns. 16-21].

19. (original) The method as claimed in claim 18, wherein the metallic portions are comprised of nickel [p. 12, ln. 19].

20. (original) The method as claimed in claim 19, further comprising the step of coupling a highly conductive layer to each of the metallic portions [p. 12, lns. 21-22].

48. (currently amended) The method as claimed in claim 11 further comprising providing electrically conductive leads [170; Figs. 2A and 2B] on said support structure so that said leads are electrically connected to said posts, said step of connecting said bond pads [160] of said microelectronic device and said posts including connecting said bond pads and said leads.

49. (currently amended) The method as claimed in claim 48 wherein said step of providing electrically conductive leads includes providing leads formed from an etch-resistant metal on said first surface [170; Fig. 2B] of said support structure.

50. (currently amended) The method as claimed in claim 49 wherein said step of providing said etch-resistant metal is performed before said step of coupling said conductive sheet to

said first surface of said support structure [p. 10, lns. 17-20].

51. (new) The method as claimed in claim 1 further comprising the steps of placing said support structure on a circuit board so that said posts project from said support structure to said circuit board and connecting said posts to electrically conductive features of said circuit board [Figs. 4A and 4B; p. 12, lns. 5-15; p. 9, lns. 17-20].

52. (new) A method as claimed in claim 12 wherein said compliant structure includes a compliant layer [140; Fig. 2A].

53. (new) A method as claimed in claim 12 wherein said compliant structure includes a plurality of compliant pads [145; Fig. 2B].

54. (new) A method as claimed in claim 1 wherein said conductive sheet has a uniform thickness and said top surfaces of said posts are substantially coplanar with respect to one another.

55. (new) A method as claimed in claim 54 wherein said posts have base surfaces on said support structure.

56. (new) A method of fabricating an interconnection for a microelectronic device, the method comprising:

- providing a support structure having a first surface and a second surface;

- coupling a conductive sheet to the first surface of the support structure;

- selectively removing portions of the conductive sheet thereby producing a plurality of substantially rigid, elongated posts protruding parallel to one another from the first surface of the support structure [see Claim 1, above], each post having a top surface, the top surfaces being remote from the support structure, wherein each said post has a direction of elongation and at least one edge extending along the post in said direction of elongation [see Claim 3, above].

57. (new) A method as claimed in claim 56 wherein said conductive sheet has a uniform thickness and said top surfaces of said posts are substantially coplanar with respect to one another.

58. (new) A method as claimed in claim 57 wherein said posts have base surfaces on said support structure.

52. (new) A method of fabricating an interconnection for a microelectronic device, the method comprising:

providing a support structure having a first surface and a second surface;

coupling a conductive sheet having a uniform thickness to the first surface of the support structure;
selectively removing portions of the conductive sheet thereby producing a plurality of substantially rigid, elongated posts protruding parallel to one another from the first surface of the support structure, each post having a base surface and a top surface, wherein each base surface is disposed on the support structure, the top surfaces being remote from the support structure and substantially coplanar with respect to one another, wherein each said post has a direction of elongation and at least one edge extending along the post in said direction of elongation.